

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1 and 3-14 are pending in the present application. Claim 1 is amended by the present amendment.

In the outstanding Office Action, Claims 1-7 and 9-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Sugita et al. (U.S. Patent No. 4,687,712, herein "Sugita") in view of Hokkyo et al. (U.S. Patent No. 6,387,483 B1, herein "Hokkyo") and Michaelsen et al. (U.S. Patent No. 4,245,008, herein "Michaelsen"); Claim 8 was rejected under 35 U.S.C. § 103 as unpatentable over Sugita in view of Hokkyo, Michaelsen, and Lal et al. (U.S. Patent No. 5,834,111, herein "Lal"); and Claim 14 was rejected under 35 U.S.C. § 103(a) as unpatentable over Sugita in view of Hokkyo, Michaelsen, and Kanbe et al. (U.S. Patent No. 6,221,508 B1, herein "Kanbe").

Applicant thanks the Examiner for the courtesy of an interview extended to Applicant's representative on November 17, 2003. During the interview differences between the claims and the applied art were discussed. Further, claim amendments clarifying the claims over the applied art and the unexpected results of the claimed magnetic medium were discussed. The present response sets forth those discussed claim amendments and remarks. The Examiner indicated that the claim amendments appear to distinguish over the applied art, and that he would further review the amended claims in view of a filed response.

Claims 1-7 and 9-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Sugita in view of Hokkyo and Michaelsen. That rejection is respectfully traversed.

Independent Claim 1 is amended to recite that a product of a maximum magnetic permeability and a thickness of at least two soft magnetic layers "is at least 1,500,000

(H·Å/m).” The claim amendment finds support in the specification at least at page 8, lines 5-

6. No new matter is believed to be added.

As discussed in the previously filed amendments, Claim 1 is directed to a magnetic recording medium having a non-magnetic substrate, at least two soft magnetic layers divided by a separate layer, and at least one magnetic recording layer formed on the substrate via the at least two soft magnetic layers. Further, a product of a maximum magnetic permeability and a thickness of the at least two soft magnetic layers is at least 1,500,000 (H·Å/m) and a surface roughness of the recording medium is at most 50Å.

Further, as discussed during the interview, the claimed magnetic medium achieves unexpected results as shown in the specification at page 28, Table 1. In particular, the claimed magnetic medium achieves a low noise by requiring that (i) the product of the maximum magnetic permeability and the thickness of the at least two soft magnetic layers is at least 1,500,000 (H·Å/m), and (ii) the surface roughness of the magnetic medium is at most 50Å. Applicant notes that the two mentioned properties synergically contribute to the low noise although the two properties reflect opposite tendencies. On one hand, for obtaining the product of the maximum magnetic permeability and the thickness of the at least two soft magnetic layers to be at least 1,500,000 (H·Å/m) required by Claim 1, a thickness or a number of the soft magnetic layers should be increased. On another hand, for obtaining the surface roughness of at most 50Å required by Claim 1 the thickness of the soft magnetic layers should be decreased. However, the combination of the two claimed features shown in Table 1 as Example 1 achieves a normalized noise spectrum of 3 Mhz that is considerably less than the other three examples (Comparative Examples) that produce a normalized noise spectrum in a range of 18 to 45 Mhz and include only one of the two features of Claim 1.

As recognized in the outstanding Office Action at page 4, item 9, "Sugita does not teach a magnetic recording medium wherein the medium has a surface roughness Ra of <50 angstroms." Therefore, Sugita lacks one of the features required by Claim 1.

Hokkyo is asserted in the outstanding Office Action for teaching a single perpendicular magnetic medium having a magnetic layer with a surface roughness less than 50Å because of a smoothness control layer. However, Hokkyo does not teach or suggest at least two soft magnetic layers having a product of the maximum magnetic permeability and a thickness of the at least two soft magnetic layers is at least 1,500,000 (H·Å/m). Therefore, Hokkyo lacks the other feature required by Claim 1.

Further, the outstanding Office Action asserts at page 5, item 11, that it would have been obvious for one of ordinary skill in the art to combine the two references to achieve both features of Claim 1. However, as discussed during the interview and as shown in the specification at page 28, Table 1, each of Sugita and Hokkyo teaches only one feature of Claim 1 and the magnetic mediums of Sugita and Hokkyo are similar to the Comparative Examples discussed above. Therefore, one of ordinary skill in the art would have not been motivated to combine Sugita and Hokkyo because there is no suggestion or expectation on record for achieving the unexpected results of the magnetic medium of Claim 1.

Michaelsen is asserted in the outstanding Office Action for teaching a coercivity below 50 oersted. However, Michaelsen does not overcome the deficiencies of Sugita discussed above.

Accordingly, it is respectfully submitted that independent Claim 1 and each of the claims depending therefrom patentably distinguish over Sugita, Hokkyo, and Michaelsen.

Claim 8 was rejected under 35 U.S.C. § 103(a) as unpatentable over Sugita, Hokkyo, Michaelsen, and Lal. That rejection is respectfully traversed.

The outstanding Office Action relies on Lal for teaching a magnetic recording medium including various elements. However, Lal does not overcome the deficiencies of Sugita, Hokkyo, and Michaelsen discussed above. In addition, Claim 8 directly depends on independent Claim 1, which is believed to be allowable as noted above. Accordingly, it is respectfully submitted that dependent Claim 8 is also allowable.

Claim 14 was rejected under 35 U.S.C. § 103(a) as unpatentable over Sugita, Hokkyo, Michaelsen, and Kanbe. That rejection is respectfully traversed.

The outstanding Office Action relies on Kanbe for teaching a magnetic storage apparatus that includes various elements. However, Kanbe does not overcome the deficiencies of Sugita, Hokkyo, and Michaelsen discussed above. In addition, Claim 14 depends directly on independent Claim 1, which is believed to be allowable as noted above. Accordingly, it is respectfully submitted that dependent Claim 14 is also allowable.

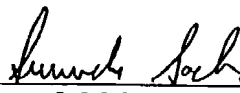
Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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